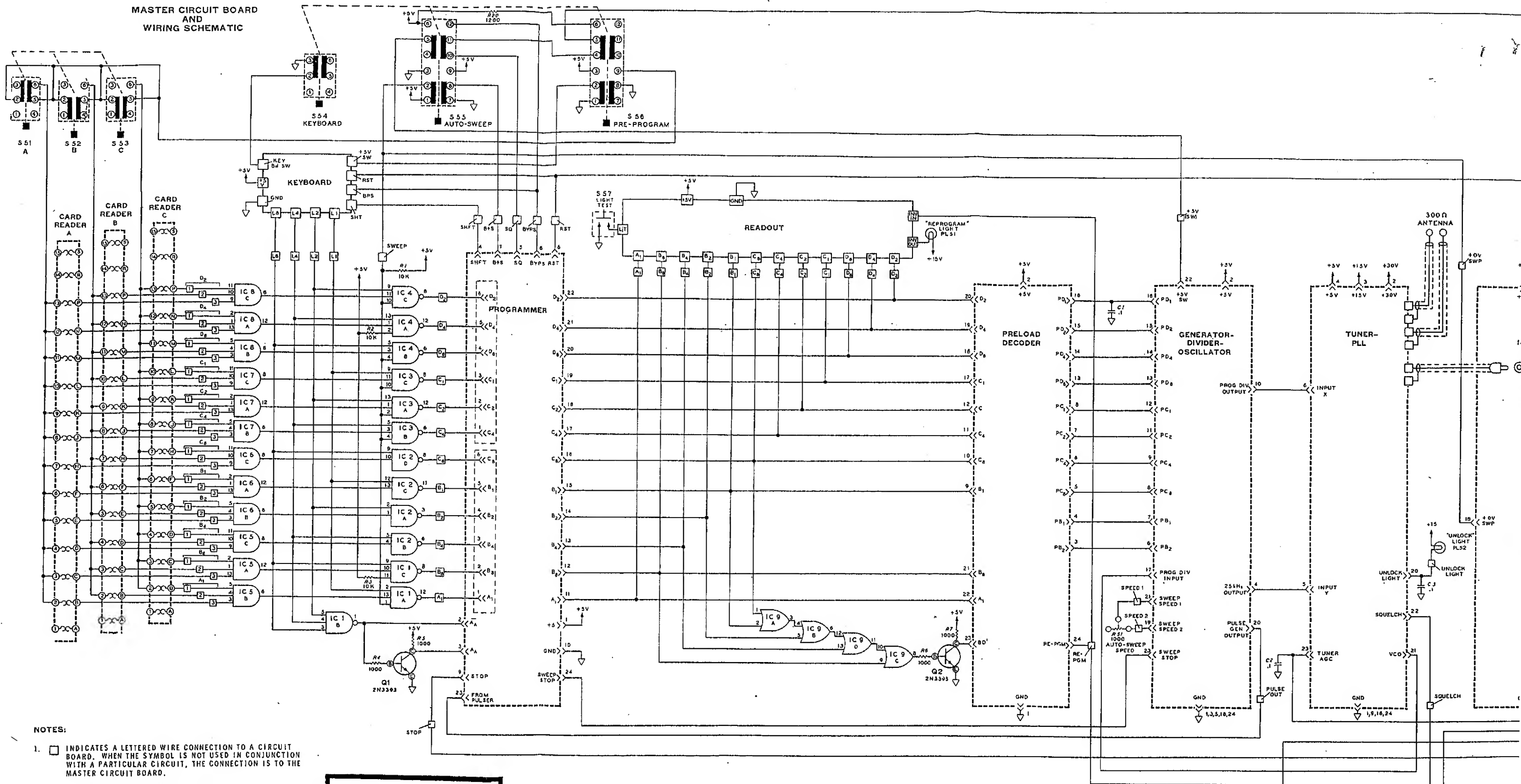
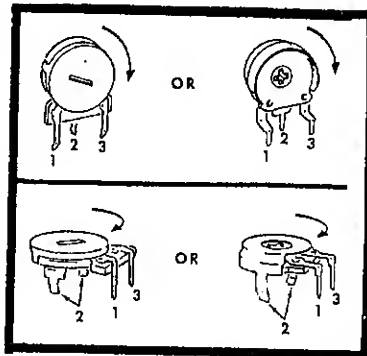


# MASTER CIRCUIT BOARD AND WIRING SCHEMATIC



## NOTES:

1. INDICATES A LETTERED WIRE CONNECTION TO A CIRCUIT BOARD. WHEN THE SYMBOL IS NOT USED IN CONJUNCTION WITH A PARTICULAR CIRCUIT, THE CONNECTION IS TO THE MASTER CIRCUIT BOARD.
2. INDICATES A CIRCUIT BOARD GROUND.
3. INDICATES A CHASSIS GROUND.
4. ALL RESISTORS ARE 1/2-WATT 5% UNLESS OTHERWISE SPECIFIED.
5. ALL CAPACITOR VALUES LARGER THAN 1.0 ARE IN pF UNLESS OTHERWISE SPECIFIED. CAPACITOR VALUES LESS THAN 1.0 ARE IN pF.
6. REFER TO THE CHASSIS PHOTOGRAPHS AND CIRCUIT BOARD X-RAY VIEWS FOR THE PHYSICAL LOCATION OF PARTS.
7. THE ARROW INDICATES CLOCKWISE ROTATION OF A CONTROL OR SWITCH, AS VIEWED FROM THE KNOB END OR AS SHOWN FOR CIRCUIT BOARD CONTROLS. THE CIRCUIT BOARD CONTROL LUG NUMBERS CORRESPOND TO THOSE SHOWN ON THE SCHEMATIC AND X-RAY VIEWS.

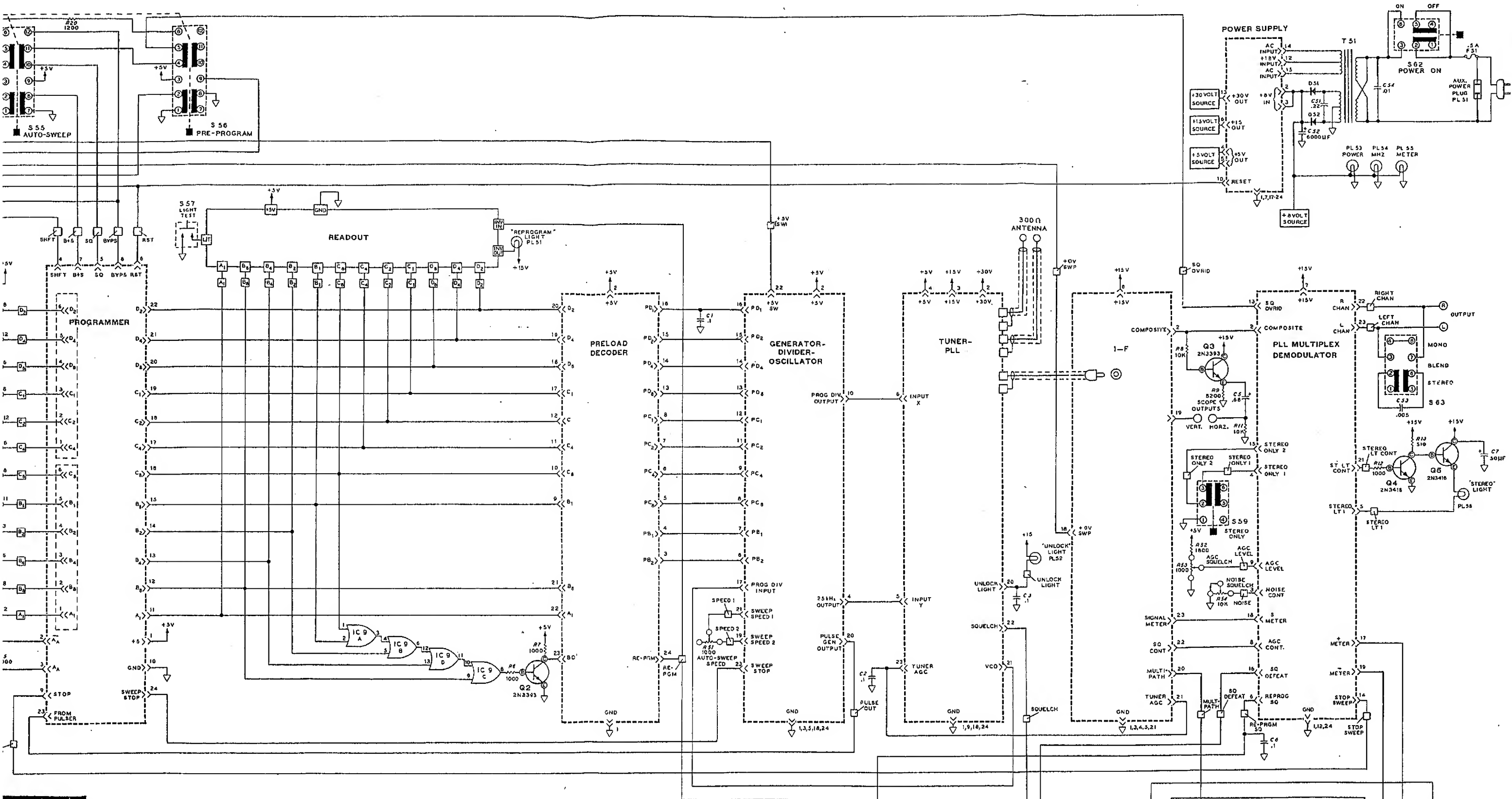


8. RESISTORS, CAPACITORS, AND COMPONENT NUMBERS ARE IN THE FOLLOWING GROUPS:

1-49	PARTS MOUNTED ON THE MASTER CIRCUIT BOARD.
50-99	" " " " CHASSIS.
100-199	" " " " POWER SUPPLY CIRCUIT BOARD.
200-299	" " " " PROGRAMMER CIRCUIT BOARD.
300-399	" " " " PRELOAD DECODER CIRCUIT BOARD.
400-499	" " " " GEN-DIV-OSC CIRCUIT BOARD.
500-599	" " " " TUNER-PLL CIRCUIT BOARD.
600-699	" " " " 1-F CIRCUIT BOARD.
700-799	" " " " PLL-MULTIPLEXER DEMODULATOR CIRCUIT BOARD.
800-899	" " " " KEYBOARD CIRCUIT BOARD.
900-999	" " " " READOUT CIRCUIT BOARD.

9. #1815 LAMPS ARE USED FOR PL53, PL54, PL55.  
#1813 LAMPS ARE USED FOR PL51, PL52, PL56.

## SCHEMATIC OF THE HEATHKIT® DIGITAL FM STEREO TUNER MODEL AJ-1510

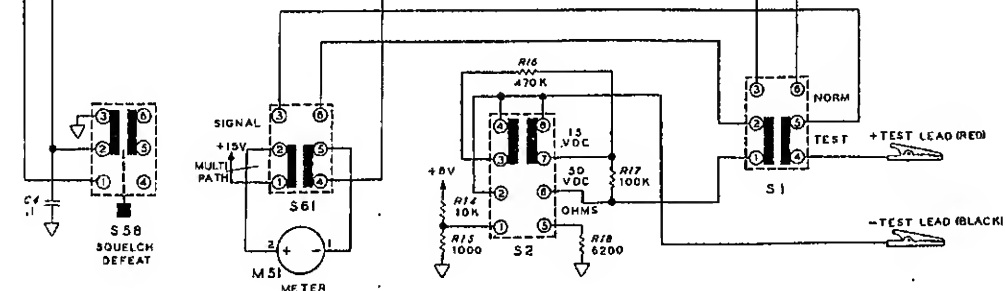


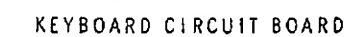
8. RESISTORS, CAPACITORS, AND COMPONENT NUMBERS ARE IN THE FOLLOWING GROUPS:

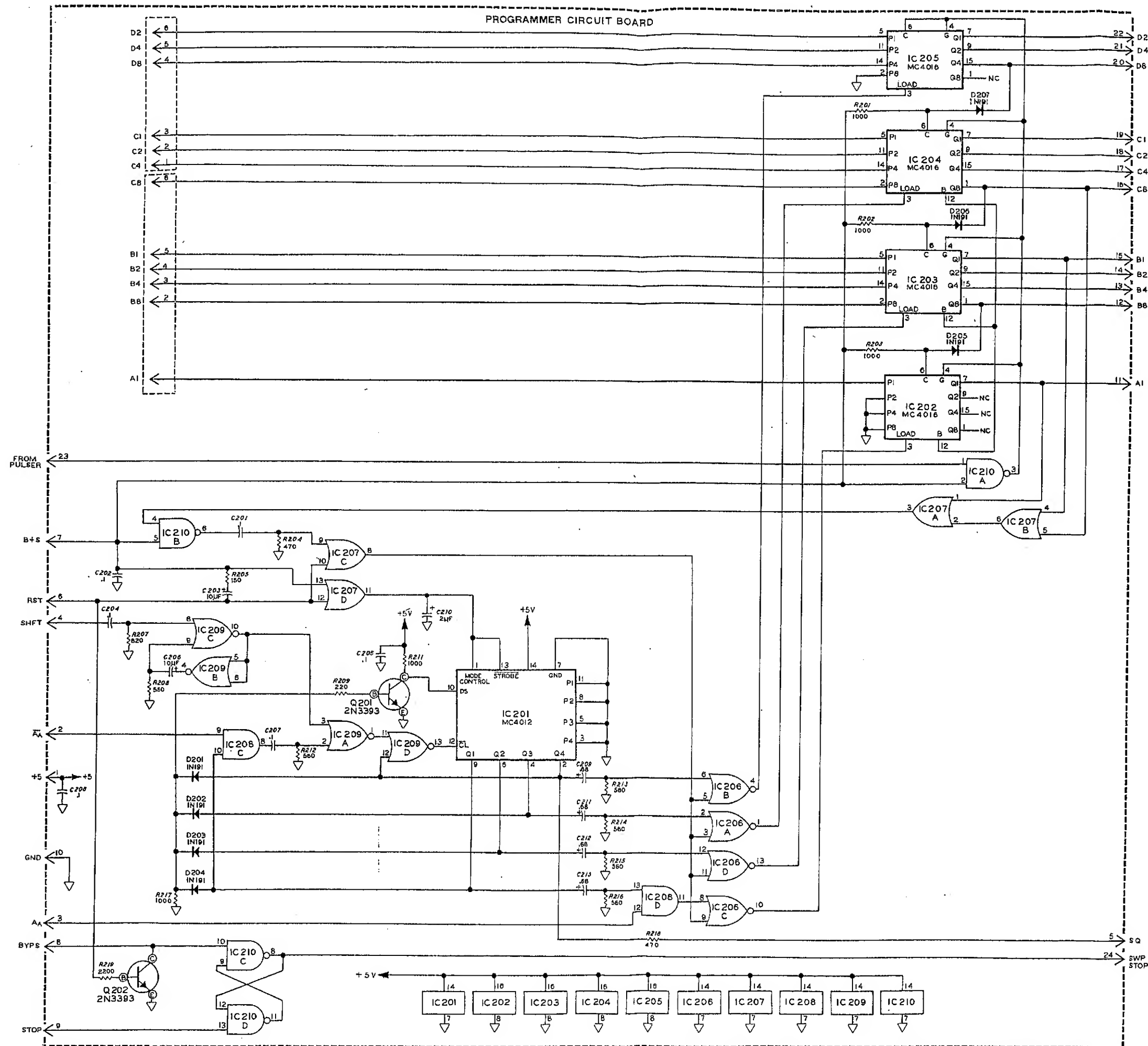
1-49	PARTS MOUNTED ON THE MASTER CIRCUIT BOARD.
50-99	" " " " CHASSIS.
100-199	" " " " POWER SUPPLY CIRCUIT BOARD.
200-299	" " " " PROGRAMMER CIRCUIT BOARD.
300-399	" " " " PRELOAD DECODER CIRCUIT BOARD.
400-499	" " " " GEN-DIV-OSC CIRCUIT BOARD.
500-599	" " " " TUNER-PLL CIRCUIT BOARD.
600-699	" " " " 1-F CIRCUIT BOARD.
700-799	" " " " PLL-MULTIPLEXER DEMODULATOR CIRCUIT BOARD.
800-899	" " " " KEYBOARD CIRCUIT BOARD.
900-999	" " " " READOUT CIRCUIT BOARD.

9. #1815 LAMPS ARE USED FOR PL53, PL54, PL55.  
#1813 LAMPS ARE USED FOR PL51, PL52, PL56.

# SCHEMATIC OF THE HEATHKIT® DIGITAL FM STEREO TUNER MODEL AJ-1510

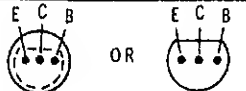
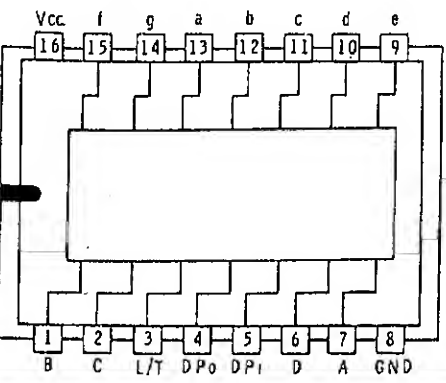
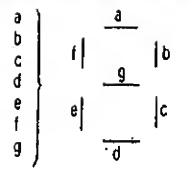


SEMICONDUCTOR CHART

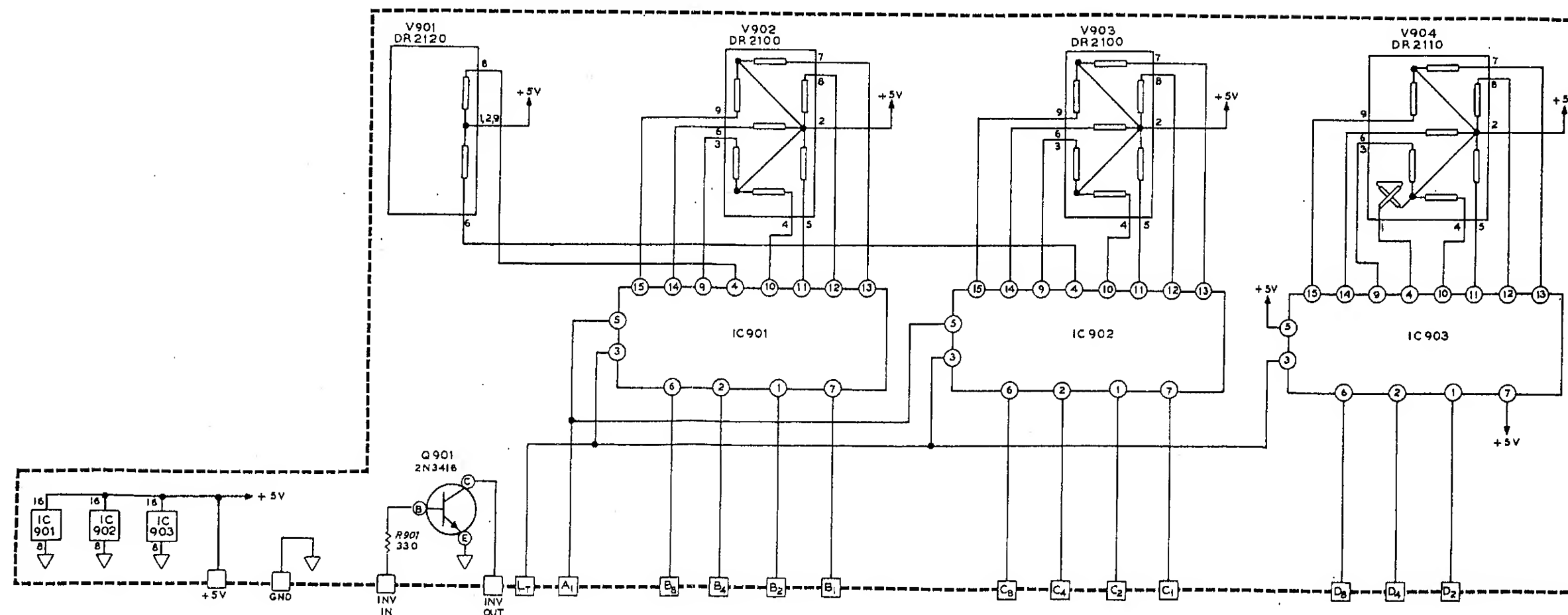


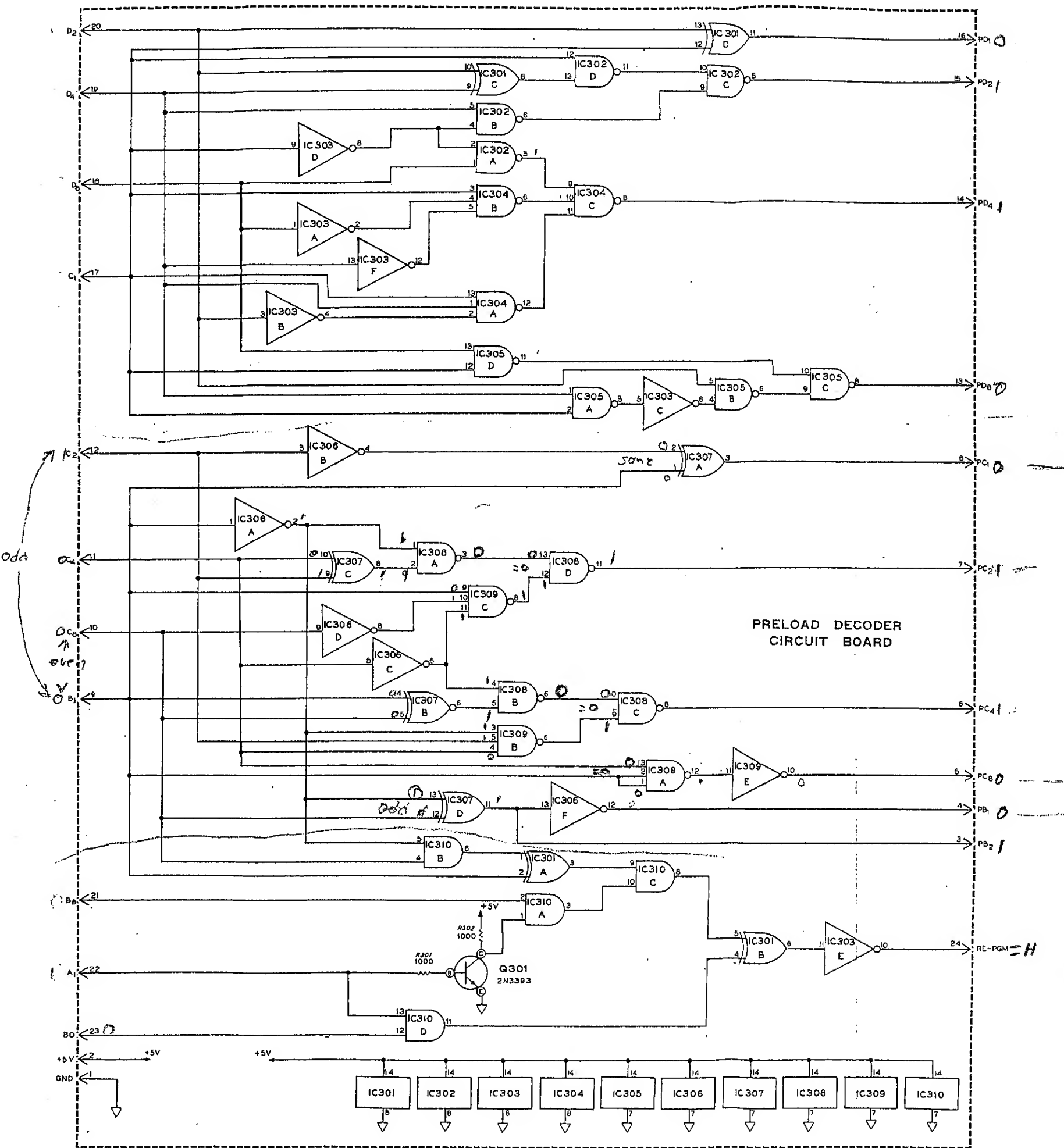
SEMICONDUCTOR CHART				
COMPONENT NUMBER	HEATH PART NUMBER	MAY BE REPLACED BY	DESCRIPTION	LEAD CONFIGURATION
Q201 Q202	417-118	2N3393	NPN TRANSISTOR	(BOTTOM VIEW) 
D201-D202	56-26	1N191	CRYSTAL DIODE 90 V, 45 MA	
IC210	443-1	SN7400N	QUADRUPLE 2-INPUT POSITIVE NAND GATES	(TOP VIEW) 
IC206 IC209	443-46	SN7402N	QUADRUPLE 2-INPUT POSITIVE NOR GATES	(TOP VIEW) 
IC208	443-45	SN7408N	QUADRUPLE 2-INPUT POSITIVE AND GATES	(TOP VIEW) 
IC207	443-57	MC3003P	QUADRUPLE 2-INPUT POSITIVE OR GATES	(TOP VIEW) 
IC201	443-60	MC4012P	4-BIT SHIFT REGISTER	(TOP VIEW) 
IC202 IC203 IC204 IC205	443-61	MC4016P	PROGRAMMABLE DECADE COUNTER	(TOP VIEW) 

# SEMICONDUCTOR CHART

COMPONENT NUMBER	HEATH PART NUMBER	MAY BE REPLACED BY	DESCRIPTION	LEAD CONFIGURATION
Q901	417-94	2N3416	NPN TRANSISTOR	
IC901 IC902 IC903	443-64	CD2500E	BCD TO 7-SEGMENT DECODER-DRIVER	  L/T - LIGHT TEST DPo - DECIMAL POINT OUTPUT DPi - DECIMAL POINT INPUT A B C D } BCD INPUTS

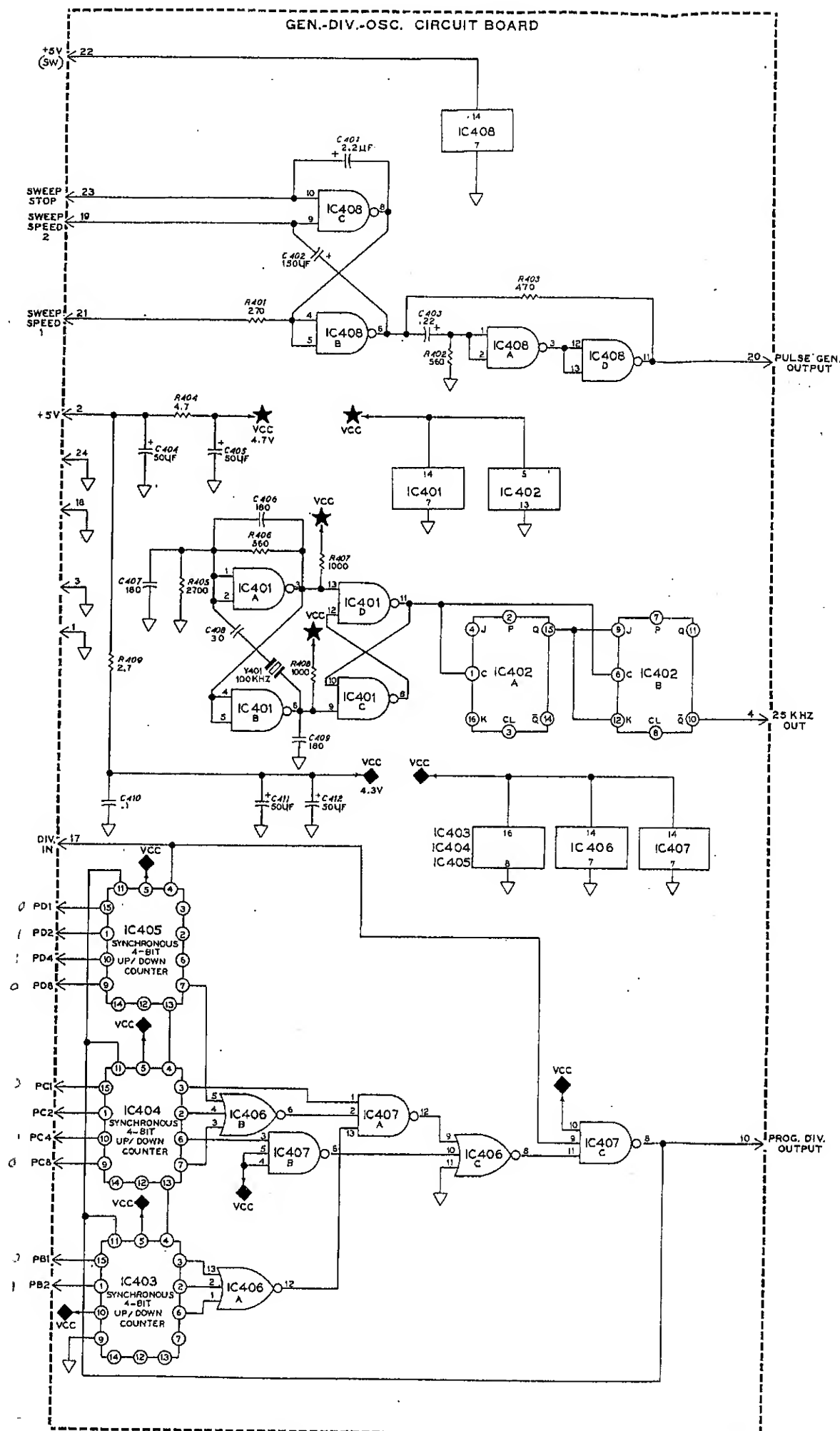
## READOUT CIRCUIT BOARD





SEMICONDUCTOR CHART

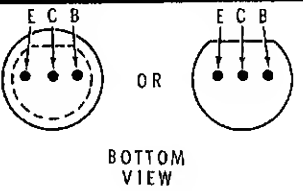
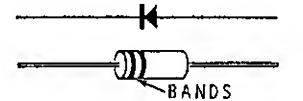
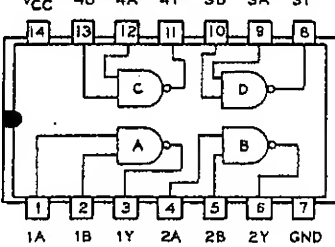
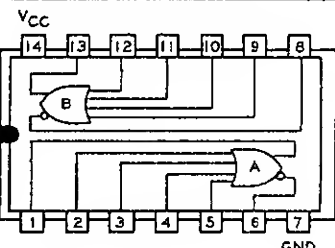
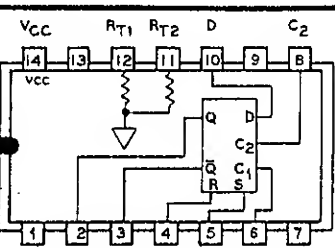
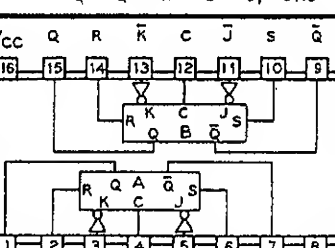
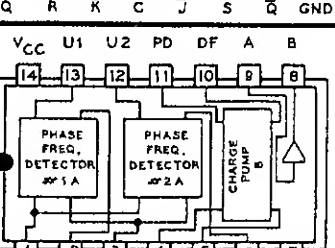
COMPONENT NUMBER	HEATH PART NUMBER	MAY BE REPLACED BY	DESCRIPTION	LEAD CONFIGURATION
Q301	417-118	2N3393	NPN TRANSISTOR	BOTTOM VIEW 
IC302 IC305 IC308	443-1	SN7400N	QUADRUPLE 2-INPUT POSITIVE NAND GATES	TOP VIEW 
IC304 IC309	443-12	SN7410N	TRIPLE 3-INPUT POSITIVE NAND GATES	TOP VIEW 
IC303 IC306	443-18	SN7404N	HEX INVERTERS	TOP VIEW 
IC310	443-45	SN7408N	QUADRUPLE 2-INPUT POSITIVE AND GATES	TOP VIEW 
IC301 IC307	443-698	TTL7486	QUADRUPLE 2-INPUT EXCLUSIVE OR GATES	TOP VIEW 

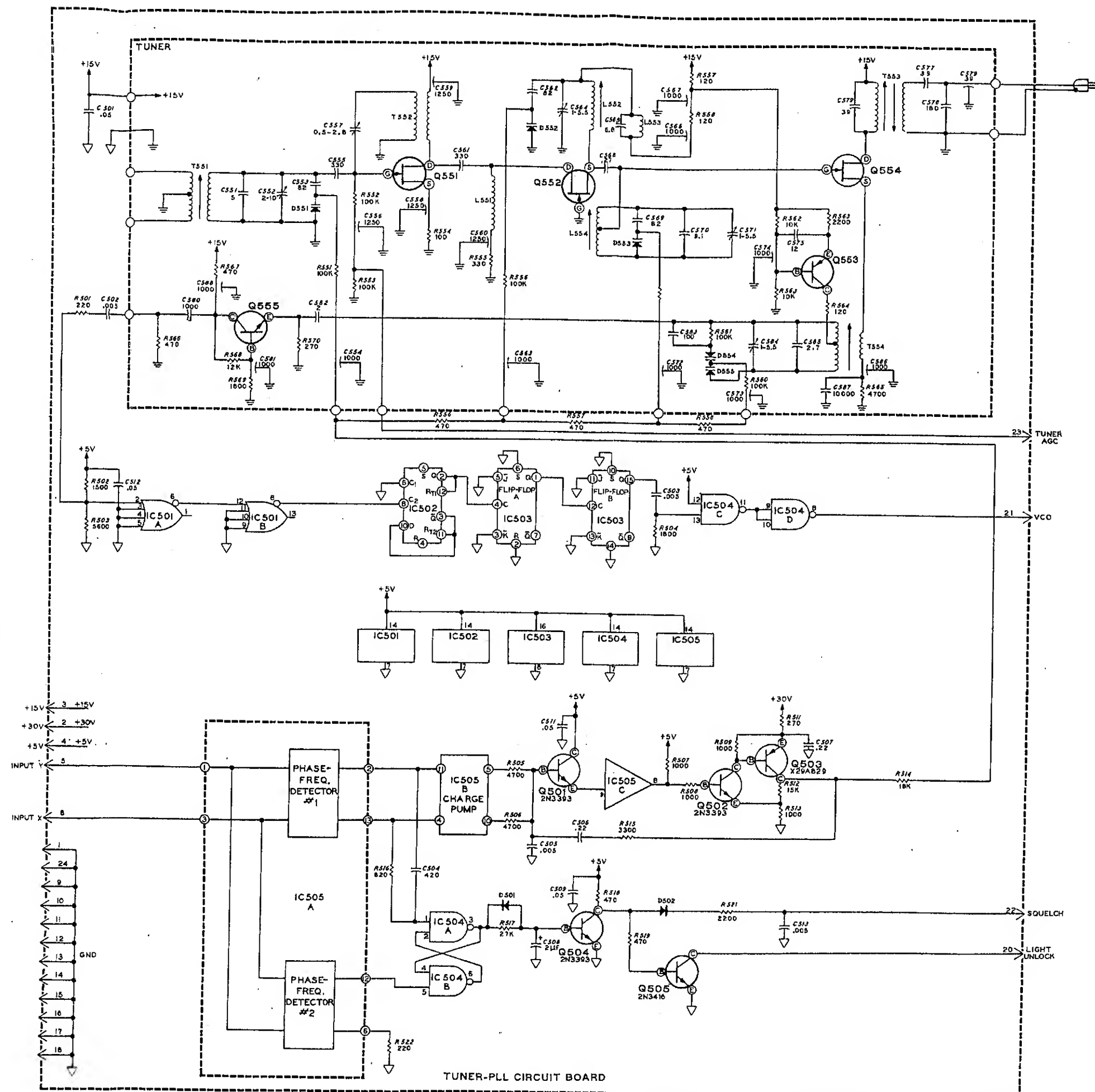


**SEMICONDUCTOR CHART**

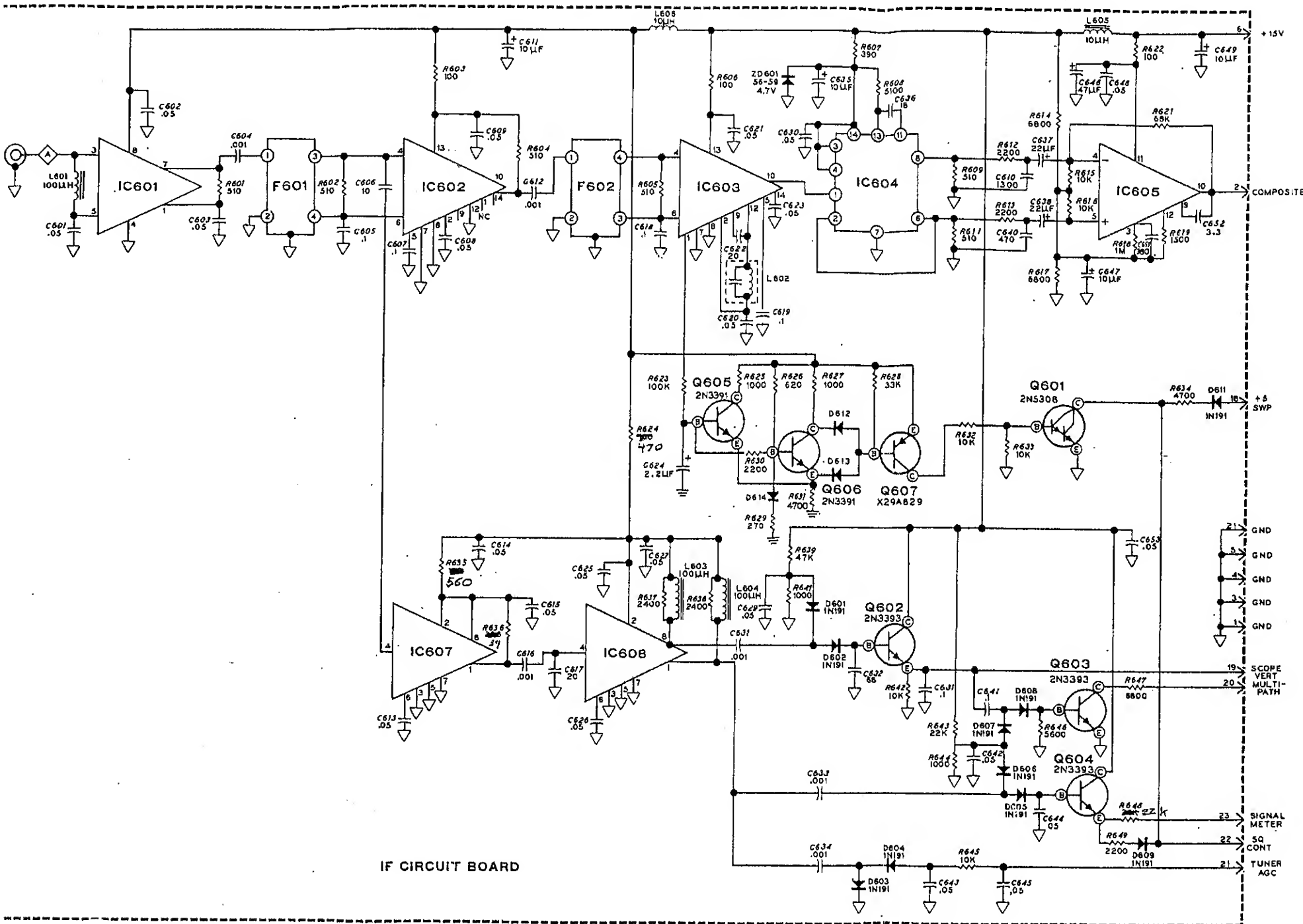
COMPONENT NUMBER	HEATH PART NUMBER	MAY BE REPLACED BY	DESCRIPTION	LEAD CONFIGURATION
IC401 IC408	443-1	SN7400N	QUADRUPLE 2-INPUT POSITIVE NAND GATES	<p>TOP VIEW</p>
IC407	443-68	SN74H10	TRIPLE 3-INPUT POSITIVE NAND GATES	<p>TOP VIEW</p>
IC402	443-16	SN7476N	DUAL J-K FLIP-FLOPS	<p>TOP VIEW</p>
IC406	443-65	SN7427N	TRIPLE 3-INPUT POSITIVE NOR GATES	<p>TOP VIEW</p>
IC403 IC404 IC405	443-66	SN74192	SYNCHRONOUS 4-BIT UP/DOWN COUNTER	<p>TOP VIEW</p>

# SEMICONDUCTOR CHART

COMPONENT NUMBER	HEATH PART NUMBER	MAY BE REPLACED BY	DESCRIPTION	LEAD CONFIGURATION
Q501 Q502 Q504	417-118	2N3393	NPN TRANSISTOR	 BOTTOM VIEW
Q505	417-94	2N3416	NPN TRANSISTOR	
Q503	417-201	X29A829	PNP TRANSISTOR	
D501 D502	56-26	1N191	CRYSTAL DIODE 90V, 45mA	 BANDS
IC504	443-1	SN7400N	QUADRUPLE 2-INPUT POSITIVE NAND GATES	 (TOP VIEW)
IC501	443-38	MC1023P	DUAL 4-INPUT OR/NOR GATES	 (TOP VIEW)
IC502	443-39	MC1034 P	TYPE D FLIP-FLOP	 (TOP VIEW)
IC503	443-56	MC1032	DUAL J-K FLIP-FLOP	 (TOP VIEW)
IC505	443-62	MC4044 P	PHASE/FREQUENCY DETECTOR	 (TOP VIEW)



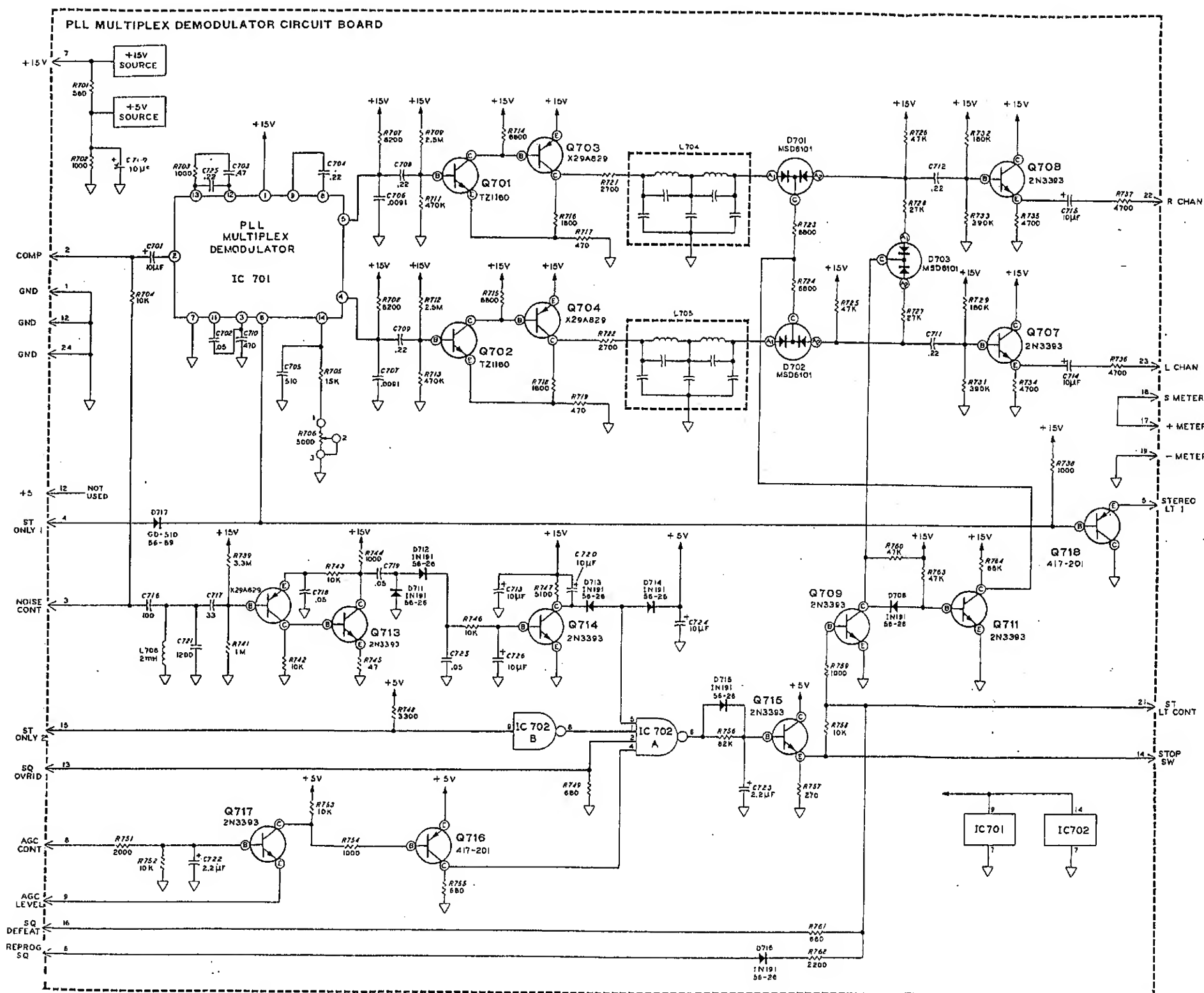




IF CIRCUIT BOARD

# SEMICONDUCTOR CHART

COMPONENT NUMBER	HEATH PART NUMBER	MAY BE REPLACED BY	DESCRIPTION	LEAD CONFIGURATION
Q602, Q603, Q604	417-118	2N3393	NPN TRANSISTOR	<p>BOTTOM VIEW</p>
Q601	417-222	2N5308	NPN TRANSISTOR	
Q605, Q606	417-91	2N3391	NPN TRANSISTOR	
Q607	417-201	X29A829	PNP TRANSISTOR	
D601 - D609	56-26	1N191	CRYSTAL DIODE	
D611	56-59	1N750A	ZENER DIODE	
D614	56-74	MZ2362	DIODE	
IC605	442-2	SN72709	OPERATIONAL AMPLIFIER	<p>TOP VIEW</p>
IC607	442-18	MC1330P	IF AMPLIFIER	<p>TOP VIEW</p>
IC601	442-20	HA703	RF-IF AMPLIFIER	<p>TOP VIEW</p>
IC602	442-28	MC1357P	FM DETECTOR AND LIMITER	<p>TOP VIEW</p>
IC604	443-67	MC8601P	RETRIGGERABLE MONOSTABLE MULTIVIBRATOR	<p>TOP VIEW</p>



SEMICONDUCTOR CHART

COMPONENT NUMBER	HEATH PART NUMBER	MAY BE REPLACED BY	DESCRIPTION	LEAD CONFIGURATION
Q707, Q708 Q709, Q711 Q713, Q714 Q715, Q717	417-118	2N3393	NPN TRANSISTOR	<p>BOTTOM VIEW</p>
Q703, Q704 Q712, Q716 Q718	417-201	X29A829	PNP TRANSISTOR	
Q701, Q702	417-218	TZ1160	NPN TRANSISTOR	
D701 D702 D703	56-164	MSD6101	DUAL DIODE	<p>BOTTOM VIEW</p> <p>ANODE CATHODE ANODE</p>
D704, D705 D706, D707 D708, D711 D712, D713 D714, D715 D716	56-26	1N191	CRYSTAL DIODE 90V, 45mA	<p>BANDS</p>
D717	56-89	GD-510	25V, 100mA	
IC701	442-46	MC1310	FM PLL MULTIPLEX STEREO DEMODULATOR	<p>TOP VIEW</p> <p>VCC 1 INPUT 2 AMPLIFIER OUTPUT 3 LEFT CHANNEL OUTPUT 4 RIGHT CHANNEL OUTPUT 5 LAMP INDICATOR 6 GND 7 OSCILLATOR RC NETWORK 14 LOOP FILTER 13 LOOP FILTER 12 MODULATOR OUTPUT 11 19KHz OUTPUT 10 SWITCH FILTER 9 SWITCH FILTER 8</p>
IC702	443-2	SN7420N	DUAL 4-INPUT POSITIVE NAND GATE	<p>TOP VIEW</p> <p>14 VCC 13 12 11 10 9 8 7 GND 6 5 4 3 2 1</p>



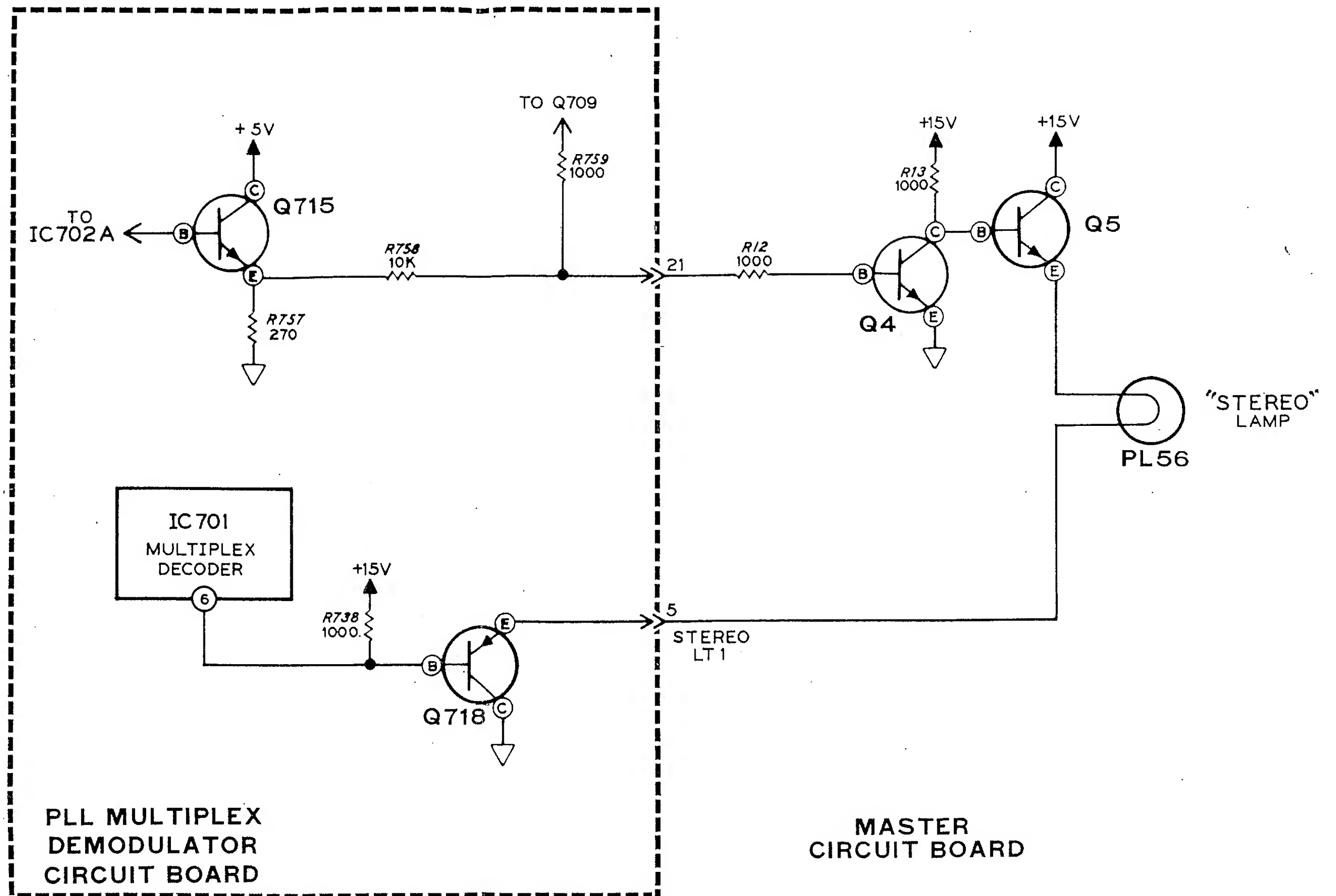


Figure 6-8